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NEOCRASPEDOLEPTA N. GEN., FOR *APHALARA SUBPUNCTATA*

(Homoptera Psylloidea)

Abstract. — The new genus differs from the four genera recognized by KLIMASZEWSKI 1983 in *Craspedolepta* s.l.: in the structure of terminalia of the adults, in the primitive structure of the egg, in the host plant (*Epilobium angustifolium*, *Onagraceae*), and in the life history of the larvae, which live in galls on the roots. The AA ascribe also the Nearctic *Aphalara schwarzi* to *Neocraspedolepta*. They report as well complementary morphological notes on the adult of the type-species and biological and geonemical data on this species in Italy. Twenty-nine illustrations of details are supplied.

Riassunto. — *Neocraspedolepta* n. gen., per *Aphalara subpunctata* (Homoptera Psylloidea).

Il n. gen. si distingue dai 4 generi ammessi da KLIMASZEWSKI 1983 per *Craspedolepta* s.l.: nell'adulto soprattutto per i terminalia della ♀ e del ♂, nell'uovo per la struttura primitiva, nella biologia per la pianta nutrice (*Epilobium angustifolium*, *Onagraceae*), nonché per avere larve viventi in galle radicali. Al n. gen. gli AA ascrivono, oltre alla specie-tipo, la neartica *Aphalara schwarzi*, pure da *Epilobium angustifolium*. Si danno notizie complementari sulla morfologia di *N. subpunctata* e dati biologici e geonemici per detta specie in Italia. Il lavoro è corredato da 29 figure.

1. *Neocraspedolepta* n. gen. (Family **Aphalaridae**, Subfamily **Aphalarinae**).

Type-species: Aphalara subpunctata Förster, 1848.

Diagnosis: Neocraspedolepta n. gen. is characterized by the combination of the following characters:

1) Adult: body without wax-covered setae; vertex longer than half its width; clypeus oblong, situated between the genae; antennae with rhinaria in apical part of segments IV-IX; dorsal branches of the prepeural suture (the lateral margin of pronotum of KLIMASZEWSKI 1983)

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forming an obtuse angle of about 140° (but also less); forewing semi-transparent or with large clouds; fore-margin of forewing thickened, though without proper pterostigma; parameres of peculiar form, with backwards curved distal half and with long oblique apophysis; apical lamina of penis short and terminal tube of ductus ejaculatorius short; female proctiger with bipartite apex and with margin bent inferiorly.

2) Egg: elongate, oval, with the micropyle at the opposite pole of the short stalk (type I of LOGINOVA 1979). Nymphs lacking differences to *Craspedolepta* s.l.

3) Host plant and life history: *Neocraspedolepta* lives during its whole cycle on *Epilobium* (= *Chamaenerion*) *angustifolium* (*Onagraceae*). The I-IV instar larvae of the type-specie live on rootlets of the host plant where they cause peculiar galls; the IV instar larvae overwinter in these galls.

In particular, the new genus differs from the four genera recognized by KLIMASZEWSKI 1983 in *Craspedolepta* s.l. (*Cerna*, *Tetrafollicula*, *Xanioptera* and *Craspedolepta* s. str.):

1) in the structure of the male and especially the female terminalia;

2) in the host plants of the family *Onagraceae*, while the other species of *Craspedolepta* s.l. have as host plants *Compositae*, with the exception of *nebulosa* on *Onagraceae* and *innocia* on *Umbelliferae*;

3) in the life history: the larvae live in galls on the roots, which is rarely observed in Psylloidea.

Already LAUTERER 1976 (pag. 114) expressed the opinion that *C. subpunctata* and related species should form an independent genus.

Other species. Apart from the type-species, the new genus includes *Aphalara schwarzi* Ashmead, 1904 (= *A. alaskensis* Ashmead, 1904) (*sensu* JOURNET & VICKERY, 1979: 132-135, figs. 442-451) *n. comb.*, from North America, which also develops on *Epilobium angustifolium* (HODKINSON 1976: 330).

The systematic position of the other holarctic species on *Epilobium angustifolium*, *C. nebulosa*, remains uncertain. KLIMASZEWSKI 1983 referred the species to *Cerna*. However, based on the structure of the male terminalia, the species differs from other *Craspedolepta* s.l. spp., and it may be necessary to erect a new genus for it.

Derivation of name. From the Greek, *néos* = new; and *Craspedolepta*.

2. *Neocraspedolepta subpunctata* (Förster, 1848) **comb. n.**

= *Aphalara pallida* Lethierry, 1874: 95.

= *Aphalara hebecephala* Caldwell, 1936: 222.

= *Aphalara chamaenerii* Andrianova, 1948: 219.

N. subpunctata is a well-known widely distributed species, which has been several times recently described and figured. Excellent illustrations are provided by DOBREANU & MANOLACHE, 1962. Below, we supplement previous descriptions and give new figures.

Morphological data

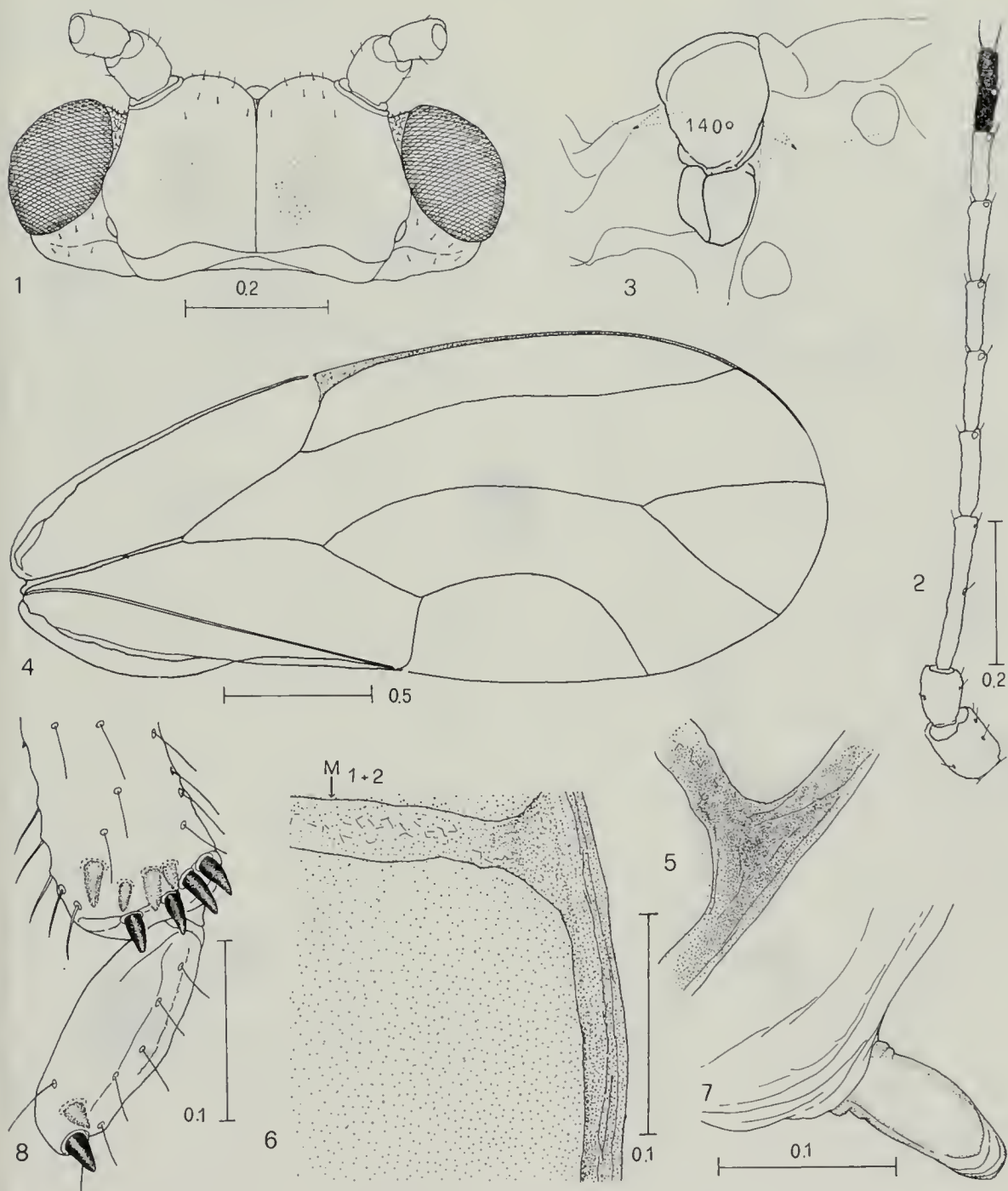
The two sexes differ in size, in the coloration of the forewings and in the structure of the terminalia.

Adult (terminology according to HODKINSON & WHITE 1979).

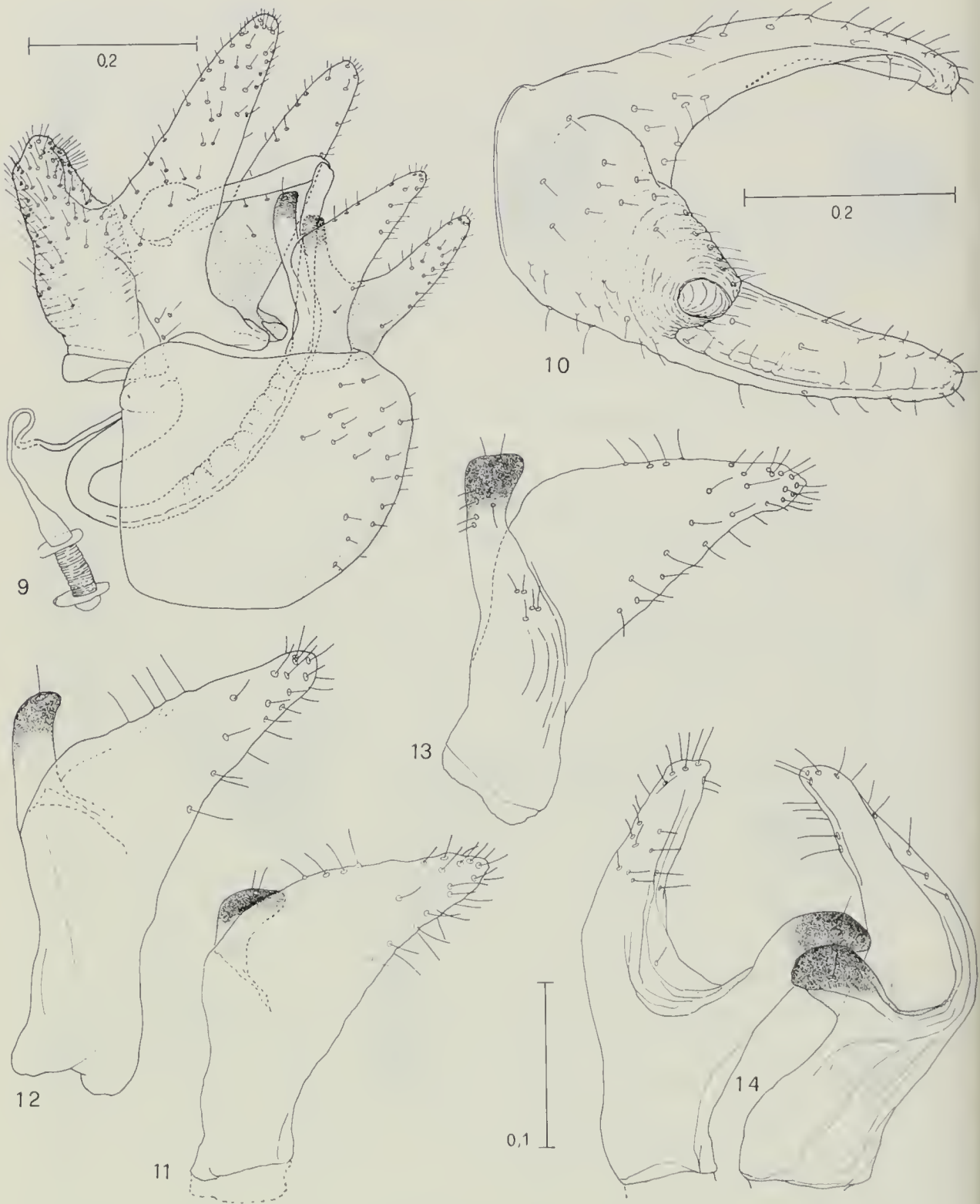
Head (fig. 1) with vertex on either side of mid-line weakly concave: the depressions are visible only in dried specimens, with oblique light. Posterior ocelli clearly separated from the eyes. Antennae (fig. 2) a little longer than head width. Dorsal branches of the propleural suture (fig. 3) forming an obtuse angle of about 140° (but sometimes this angle is smaller). Forewings (fig. 4) semitransparent. Males with characteristic brown spots (fig. 5) at the apices of veins R, Rs, M₁₊₂, M₃₊₄, Cu_{1a}, Cu_{1b} (the name of the species refers to this particularity); females with these spots smaller or sometimes absent. Males with brown veins; females with lighter veins, of the same colour as wing membrane in basal part. Irregular microsculpture (fig. 6), present on the whole upper surface of the forewing, including the veins. Meracanthus as in fig. 7. Apex of metatibia (fig. 8) with 8 black spurs; first tarsal segment with two spurs.

Male terminalia as in fig. 9. Proctiger (figs. 9-10) with oblique, forward directed and with long wing-like processes. Parameres (figs. 11-19) bent backwards in the middle at a right angle, with strong and long, obliquely inwards directed apophysis. The appearance of these apophysis is very variable according to the visual position. Therefore we think useful to give some figures with the unexpected variations of the view of this complex. Sperm pump (fig. 9) with little rings. Penis (figs. 20-21) with short apical lamina, forming an angle of about 45° with the stalk; terminal tube of ductus ejaculatorius short. Base of apical dilatation membranous, variable in shape.

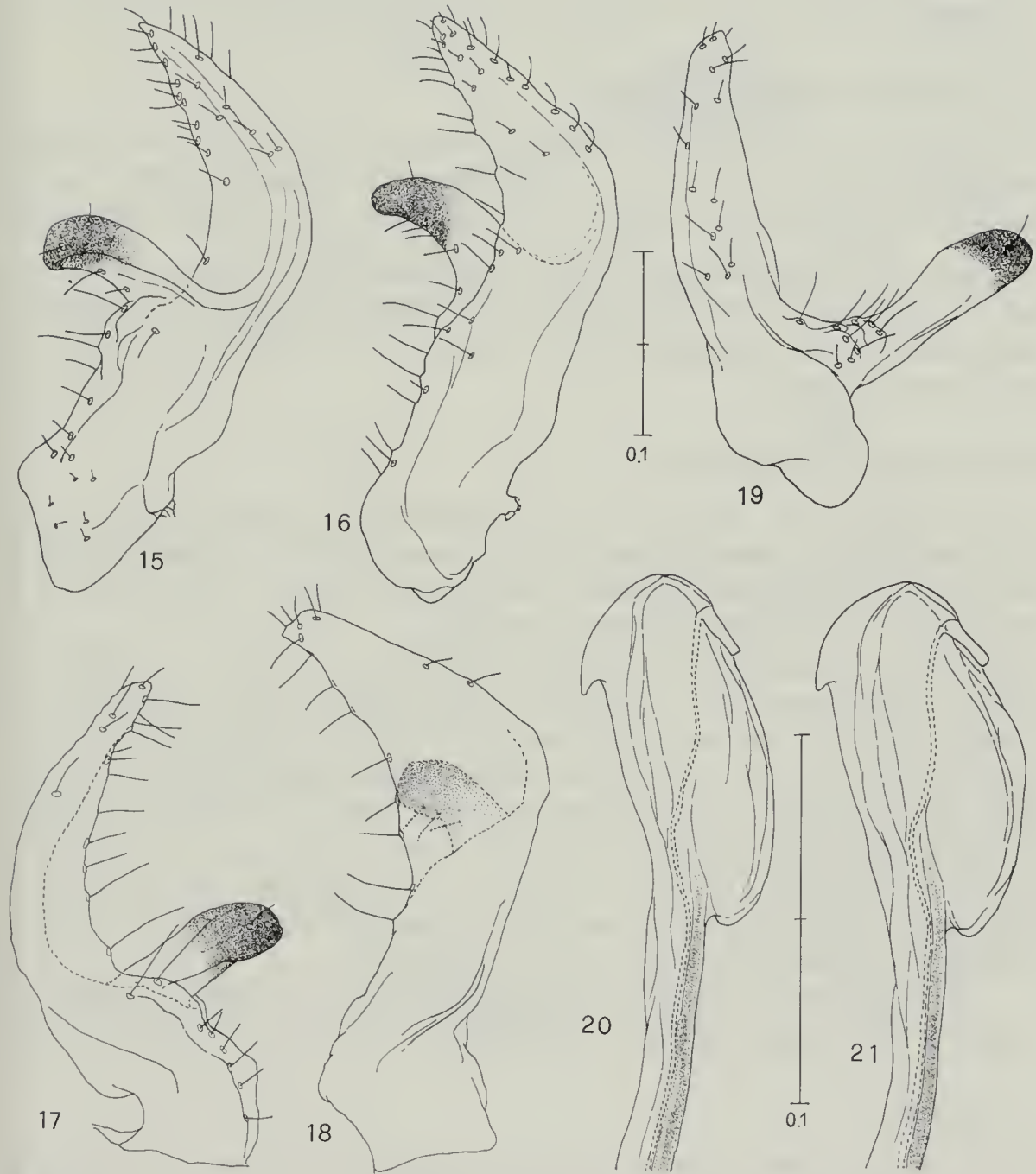
Female terminalia (figs. 22-27) of very peculiar structure. Proctiger (figs. 22-23) ending in two points, which is unique among European



Neocraspedolepta subpunctata, ♂, specimens from Trentino — Fig. 1: head. - Fig. 2: antenna. - Fig. 3: pronotum, lateral view. - Fig. 4: forewing. - Fig. 5: apex of vein M_{3+4} shownig the dark spot. - Fig. 6: microsculpture on upper surface of forewing in the cell m_2 , between vein M_{1+2} and marginal vein. - Fig. 7: meracanthus. - Fig. 8: apex of metatibia and first tarsal segment.



Neocraspedolepta subpunctata, ♂, specimens from Trentino — Fig. 9: terminalia. - Fig. 10: proctiger, from above, weakly inclined. - Figs. 11-12: left paramere, outer surface, seen from two different angles. - Fig. 13: right paramere, inner surface. - Fig. 14: parameres, posterior view.



Neocraspedolepta subpunctata, ♂, specimens from Trentino — Fig. 15: right paramere, posterior view. - Fig. 16: paramere, anterior aspect. - Figs. 17-19: parameres, oblique view. - Figs. 20-21: penis, from two specimens.

psyllids; only *N. schwarzi* has this characteristic. Lateral-ventral margin of proctiger slightly curved inside. Proctiger in lateral view (figs. 24-25) high and plump, with dorsal margin convex in distal half. Genital segment, in ventral view (fig. 26), with truncate apex. Ovipositor as in fig. 27.

Coloration green or yellowish.

Egg as in figs. 28-29. LOGINOVA (1979, fig. 69) illustrated the egg, and referred it to the type I, with primitive characters. The egg is oblong-oval, with a short stalk at the base and with a short micropyle.

Nymph. The fifth instar nymph was described by LOGINOVA (1981, figs. 84-86) and by WHITE & HODKINSON (1982: 19, fig. 49); neither of them mentioned any particularities compared to other species of *Aphalara* and *Craspedolepta*.

Host plant and life history

The host plant (*Epilobium* (= *Chamaenerion*) *angustifolium*) was first reported by OSSIANNILSSON 1941 (pages. 53-54); subsequently this was confirmed in both Europa and North America. The plant is a common and widespread holarctic species.

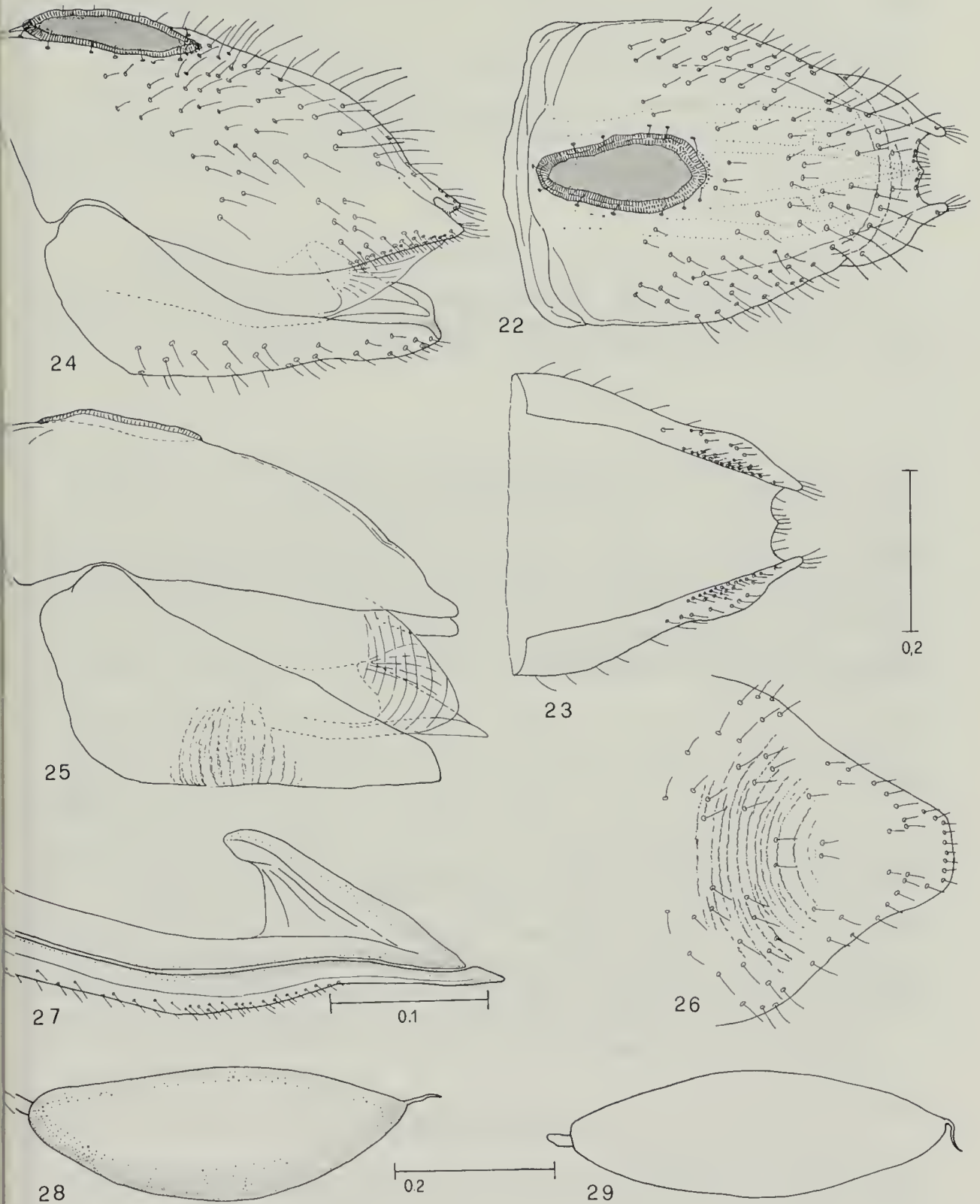
The life history of *N. subpunctata* is very peculiar. LAUTERER & BAUDYS 1968 described it in detail, in a valuable work. The adult, in Czechoslovakia at mid elevation, hatches from end of May to early June on the leaves and the stem of *Epilobium angustifolium*. The first instar larva descend to the roots and causes there a gall, in which the second to fourth larvae develop. The very dark fourth instar larvae overwinter in the root gall and climb in spring to the overground parts of their host plant. There they moult to give the pale fifth nymph, which lives on leaves and stem, where the adult will emerge.

The gall, with a diameter of about one cm, is a conglomeration of coiled rootlets and is largest in September.

Distribution

N. subpunctata is one of the few holarctic psyllids. It has been recorded from everywhere in Europe (except the Southern regions) and from Asia as far east as Mongolia. There are no reports from North Africa and Northeast Asia. The species lives also in North America: Alaska, Canada and North United States.

Till now *N. subpunctata* was reported from Italy in Trentino and Alto Adige (CONCI & TAMANINI 1984: 260). We add following findings: Trentino, Province Trento, Sarnonico, 1250 m, 10.VII.85, 1 ♂, 8 ♀♀;



Neocraspedolepta subpunctata, specimens from Trentino — Fig. 22: female proctiger, dorsal view. - Fig. 23: idem, seen from below. - Figs. 24-25: female terminalia, lateral view, from two different positions. - Fig. 26: female genital segment, seen from below. - Fig. 27: ovipositor. - Figs. 28-29: eggs.

Ruffré, Mendola, 1500 m, 19.VII.85, 1 ♂, 5 ♀♀; Ruffré, Mendola-M. Penegal, 1500-1700 m, 4.VII.86, 3 ♂♂, 4 ♀♀, including teneral specimens, 1 exuvia; Peio, Val della Mare, 1500 m, 11.VII.86, 19 ♂♂, 28 ♀♀.

On the whole, *N. subpunctata* was collected by us in two Regions of NE Italy, in 5 different localities, with 11 findings, between 1250 and 1700 m, in July, in 51 ♂♂ and 82 ♀♀, 3 nymphs and one exuvia, always on *Epilobium angustifolium*.

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